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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,347	06/27/2001	Donald Henry Willis	PU010055	3517

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EXAMINER	
DHARIA, PRABODH M	
ART UNIT	**PAPER NUMBER**
2673	

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/892,347	WILLIS, DONALD HENRY	
	Examiner	Art Unit	
	Prabodh M. Dharia	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 15* is/are rejected.

7)☒ Claim(s) *13 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. **Status:** Receipt is acknowledged of papers submitted on 12-07-2004 under request for reconsideration have been placed of record in the file. Claims 1-15 are pending in this action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-3, 5, 6** and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Carlson (U.S.* 4,523,230) in view of *Jang (U.S.* 5,361,094), and further in view of Klink (US 2002/0067337 A1).

Regarding **independent claims 1** and **6,** Carlson teaches a method of reducing sparkle artifacts in an image processing system by teaching how an image processing system using narrow-band coring such that filtering after coring suppresses sparkle (column 13, lines 46-50) wherein low-pass filters are coupled in a cascade through a summer wherein the first of the filters is associated with a lower subspectra and the second filter is associated with a higher subspectra (column 18, lines 29-49, figure *2a; see also* column 8, lines 24-62, figure 2a) such that sparkle is suppressed (column 13, lines 46-50).

However, Carlson does not teach the steps of gamma correcting a video signal. On the other hand, Jang teaches a video signal processing circuit of a CCD-type color video camera that includes a gamma correction circuit, delay circuit, a chrominance signal processor and luminance signal processor (see Abstract; column 3, lines 26-45, figure 3 at 20).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Carlson and Jang because while Carlson teaches a method of reducing sparkle artifacts in an image processing system, Jang teaches a video signal processing circuit of a CCD-type color video camera that includes a gamma correction circuit, delay circuit, a chrominance signal processor and luminance signal processor (see Abstract; column 3, lines 26-45, figure 3 at 20). The motivation for combining these inventions would have been to improve the picture quality of a video device (column 2, lines 28-32).

Carlson teaches a method of reducing sparkle artifacts in an image processing system by teaching how an image processing system using narrow-band coring such that filtering after coring suppresses sparkle (column 13, lines 46-50) wherein low-pass filters are coupled in a cascade through a summer wherein the first of the filters is associated with a lower subspectra and the second filter is associated with a higher subspectra (column 18, lines 29-49, figure *2a; see also* column 8, lines 24-62, figure 2a) such that sparkle is suppressed (column 13, lines 46-50).

However, Carlson does not teach the steps of gamma correcting a video signal. On the other hand, Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will allow imager to ignore totally gamma correction for unused pixels, that is limit any bandwidth assigned to unused pixels for processing and ignore any gamma correction to them).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Carlson, Jang and Klink because while the combination of Carlson and Jang teach a method of reducing sparkle artifacts in an image processing system and gamma correcting a video signal in such a system, Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will allow imager to ignore totally gamma correction for unused pixels, that is limit any bandwidth assigned to unused pixels for processing and ignore any gamma correction to them).The motivation for combining these inventions would have been to provide an excellent waveform display device capable of efficiently displaying large quantity of data (column 2, lines 20-25).

Regarding **claim** 2, in further discussion of claim 1, Jang teaches how the step of gamma correcting further comprises the step of producing an output containing RGB gamma corrected video drive signal components (figure 3 at 20, 42, column 3, lines 28-40).

Regarding **claims** 3 and **5,** in further discussion of claim 2, while Carlson and Jang do not teach how to slew rate limit a signal, Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will allow imager to ignore totally gamma correction for unused pixels, that is limit any bandwidth assigned to unused pixels for processing and ignore any gamma correction to them).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Carlson, Jang and Klink because while the combination of Carlson and Jang teach a method of reducing sparkle artifacts in an image processing system and gamma correcting a video signal in such a system, Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will allow imager to ignore totally gamma correction for unused pixels, that is limit any bandwidth assigned to unused pixels for processing and ignore any gamma correction to them).The motivation for combining these inventions would have been to provide an excellent waveform display device capable of efficiently displaying large quantity of data (column 2, lines 20-25).-25).

Regarding **claim 11,** in further discussion of claim 6, Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will

allow imager to ignore totally gamma correction for unused pixels, that is limit any slew rate (bandwidth) assigned to unused pixels for processing and ignore any gamma correction to them, and to control slew rate the gamma corrected pixel color data by dividing in to four phase at predetermined rate, controlling the variation in the slew rate).

4. **Claims** 4 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Carlson (U.S.* 4,523,230) in view *of Jang (U.S.* 5,361,094), Klink (US 2002/0067337 A1) and further in view of as in claims 1 and 6, and further in view of *Medin et al (U.S.* 5,936,621).

Regarding claims 4, 7 and **8,** in further discussion of claims 1 and 6, Carlson, Jang and Klink do not teach how to deinterlace a video signal. On the other hand, Medin teaches flicker filter circuits which function to deinterlace the video signals in order to reduce the flicker by providing a summation of the input data in order to reduce the high frequency component of the video line being display *(see* column 3, lines 40-61).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Carlson, Jang and Klink 's inventions because while the combination of Carlson, Jang and Klink teach how to reduce sparkle artifacts in an image processing system, gamma correcting a video signal and slew rate limit a video signal in a display device, Medin

teaches flicker filter circuits which function to deinterlace the video signals by reducing the flicker by providing a summation of the input data in order to reduce the high frequency component of the video line being display *(see* column 3, lines 40-61). The motivation for combining these inventions would have been to reduce flicker in the display system *(see* column 3, lines 40-61).

Furthermore, Medin discloses how flicker filters 50 process color portions of the video signal 30 (column 5, lines 6-15).

Furthermore, Medin teaches how the input operates in frames of input data wherein the flicker reduction circuit comprises a synchronization circuit 82 and an adder/subtractor 88 (column 5, lines 55-60, figure 7 at 82, 88) such that the synchronization function 82 accepts a linear progression of video lines 80 as input, and outputs a sequence of at least two synchronized video lines, shown as video lines n to n+m; in a preferred embodiment, video lines n+l to n+m are progressively delayed so that their sequence of control variables are synchronized in time with the control variables in video line n (column 5, lines 61 through column 6, line 3, figure 7 at 80, 82).

Regarding **claim 9,** in further discussion of claims 8, Jang teaches how the step of gamma correcting further comprises the step of producing an output containing RGB gamma corrected video drive signal components (figure 3 at 20, 42, column 3, lines 28-40).

Regarding **claim 10,** in further discussion of claims 9, Carlson, Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will allow imager to ignore totally gamma correction for unused pixels, that is limit any bandwidth assigned to unused pixels for processing and ignore any gamma correction to them).

5. **Claims 12** and **15** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Carlson (U.S.* 4,523,230) in view of *Jang (U.S.* 5,361,094), and further in view of Klink (US 2002/0067337 A1) as in claim 11 above, and further in view of *Sani et al (U.S.* 6,219,101).

Regarding **claim** 12, in further discussion of claims 11, Carlson teaches a method of reducing sparkle artifacts in an image processing system by teaching how an image processing system using narrow-band coring such that filtering after coring suppresses sparkle (column 13, lines 46-50) wherein low-pass filters are coupled in a cascade through a summer wherein the first of the filters is associated with a lower subspectra and the second filter is associated with a higher subspectra (column 18, lines 29-49, figure *2a; see also* column 8, lines 24-62, figure 2a) such that sparkle is suppressed (column 13, lines 46-50). Jang teaches a video signal processing circuit of a CCD-type color video camera that

Application/Control Number: 09/892,347 **Page 7**
Art Unit: 2675

includes a gamma correction circuit, delay circuit, a chrominance signal processor and luminance signal processor (see Abstract; column 3, lines 26-45, figure 3 at 20). Klink teaches in LCOS imager (page 1, paragraph 3, Lines 1,2, paragraph 6, Lines 1-3) slew rate limits portion of post gamma correction video (figure 1,2, page 1, paragraph 21, page 2, paragraphs 21-25 this will allow imager to ignore totally gamma correction for unused pixels, that is limit any slew rate (bandwidth) assigned to unused pixels for processing and ignore any gamma correction to them, and to control slew rate the gamma corrected pixel color data by dividing in to four phase at predetermined rate, controlling the variation in the slew rate).

However, Carlson, Jang and Klink do not teach a comparator that determines the outputs of the algebraic unit. On the other hand, Sani teaches an invention that relates to video signal processing and to converting video signals from a format such as RGB having sequential scanning to an interlaced scanning format as used in composite video wherein comparators (114, 116, 120) are used so as to provide 256 comparison levels (column 8, lines 23-39, figure 6 at 114, 116, 120; column 1, lines 10-13).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Carlson, Jang, Klink, and Sani's inventions because while the combination of Carlson, Jang and Mihara teaches how to reduce sparkle artifacts in an image processing system, gamma correcting a video signal, and slew rate limit a video signal, Sani teaches an invention that relates to video signal processing and to converting video signals from a format such as

RGB having sequential scanning to an interlaced scanning format as used in composite video wherein comparators (114, 116, 120) are used so as to provide 256 comparison levels (column 8, lines 23-39, figure 6 at 114, 116, 120; column 1, lines 10-13). The motivation for combining these inventions would have been to provide an efficient method of preventing flickering in a display device (column 1, lines 50-58).

Regarding **claim 15,** Sani teaches a multiplexer in the form of a 256-to-8 bit converter 128 that is connected to the comparators (114, 116, 120) (figure 6 at 128).

Allowable Subject Matter

6. Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance:

An apparatus for reducing sparkle artifacts in a liquid crystal imager, comprising: a device for gamma correcting a video drive signal for providing a gamma corrected video drive signal; and **a slew rate limiter for slew rate limiting said gamma corrected video drive signal; wherein said slew rate limiter further comprises a means for assuring that successive output signals from said slew rate limiter will not vary by more than a**

predetermined slew rate; wherein said slew rate limiter further comprises: an algebraic unit for providing a difference signal representative of a difference between said gamma corrected video drive signal and a preceding gamma corrected slew rate limited output; a latch for storing said preceding gamma corrected slew rate limited output; at least one comparator for determining whether said difference exceeds said predetermined slew rate; and a second algebraic unit for adding the output from said at least one comparator to a brightness level of a previous slew rated limited output pixel to generate a next new pixel; wherein said at least one comparator comprises a first comparator for determining whether said difference signal is greater than a predetermined positive slew rate and a second comparator for determining whether said difference signal is more negative than a predetermined negative slew rate.

The cited reference in the 892's fails to recite or disclose above underlined bold claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

8. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kane et al. (US 2001/0024186 A1) Active matrix light emitting diode pixel structure and concomitant method.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information

for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

AU2673

November 22, 2005

VIJAY SHANKAR
PRIMARY EXAMINER